The Antique Radio Gazette

OFFICIAL PUBLICATION OF THE ANTIQUE RADIO CLUB OF AMERICA

VOL. 17 FALL NO. 3

Picture Courtesy of John Williams

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It is our intention to have the Gazette published as closely as possible to the following dates:

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September 30 — December 30

The closing dates for receiving material of all kinds in order to have it appear in the next issue would be:

February 15 — May 15
August 15 — November 15

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The Antique Radio club of America was incorporated in the State of Kentucky, in September, 1972. The first meeting was held at the Marriott Motor Inn, Washington D.C., on September 23, 1972. At this meeting, by-laws were read and approved and directors selected. We feel that the inception of this Club is a giant step in bringing together those individuals whose chief interest lies in the area of early radio. We invite all collectors and historians of the subject to join the club. A note to William E. Denk, Secretary, 81 Steeplechase Road, Devon, Pennsylvania 19333, will bring you an application blank by return mail.

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President's Page

As you begin your review of this Gazette, autumn will start to offer us its many beautiful colors and cooler weather. The last of the major radio meets - AWA - Canandaigua, NY, will be over and most will have a stockpile of radios and parts to keep them busy until spring breaks.

Collectors are a facinating lot of people. As I run around the country looking for whatever may catch my fancy, the friendliness of collectors amazes me. Collecting does something for the inner-person and I have come to the conclusion the solution for the ill-tempered, the crime ridden and, on behalf of world peace, if we could promote the art of collecting as a major world hobby, the world will be a better place in which to live. I attend many different types of shows every year, besides our own great radio meets, and it has occurred to me several times how good-natured these people are who have found a constructive outlet for their spare time.

Maybe its only a dream, but if you consider just the growth in the radio collecting segment, the numerous new clubs, and the members being added every month, maybe, just maybe, in some small way the added bonus of a "kinder and gentler nation" is being perpetuated by our efforts. Wouldn't that be something? So much for these ideas, but think on it!

How are your local flea markets doing these days? It seems now that every month there is a new one opening up. Flea markets are producing a vast underground economy and should bring out some interesting collectibles. Let us hear from you on the success or failures of your local flea markets. Write and tell us of some of the great radios you found. This makes for a great stimulus for others whenever someone finds a real prize radio for $5.00 or so. You will not be giving away any secret if you let us in on your great buy. There would be someone ready to give you $100 for the $5.00 find, knowing exactly what you paid. What we are looking for is some trend in the marketplace. We have our regular meets, but there we are in a fixed environment with little left to second guess. Go ahead, make our day and drop John and Ruth Drake a little story about that treasure you found.

We are starting early to remind everyone of the great way to start spring next year in Cincinnati, Ohio. Our convention theme will be built around Crosley, so start to work early on that contest presentation. We will also be looking for anything to show up for the "Anything Goes As Long As It Is Crosley" portion of our meet. Drive to the conference in your restored Crosley car with a Crosley radio, pulling a trailer with a Crosley refrigerator with a built-in AM radio. Yes, they made one! Just a little plug for next spring.

Now that summer is over and you have a few extra moments in between restoration projects, sit down with pen in hand and write a short article about the favorite project you are working on. May be its an addition to your home for the storage of your collection, some unique idea about how to display an unusual radio, speaker or other related items. Perhaps you collect a variety of historical artifacts and blend them into a pleasant surrounding. We would like to hear about it. If it is unusual, send a nice clear picture

and we may be able to publish it in the Gazette. Give it a try. This is your magazine and we want each of you to be a part of it.

The next issue will arrive after the Holidays, so I do not want to miss expressing my wishes to you as we enter the Thanksgiving season, "May God Bless You With Good Health And Perhaps We Can Promote World Peace Through A World Collectors' Society".

Lloyd McIntyre
President

OUR NEWEST MEMBERS

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NEWS FROM CHARLESTON

I am certain that most ARCA members are aware of the ARCA exhibit at the Kentucky Highlands Museum in Ashland, Kentucky. This exhibit is now listed as one fo the six main permanent exhibits at the Museum.

The museum hosts numerous traveling exhibits covering a wide variety of subjects. Returning this year will be the "Toys of Yesteryear" collection. Last year, this exhibit featured pedal cars, tin wind-ups, stuffed animals, and toys relating to aviation and firefighting, as well as many others. This year's exhibit will run from November 11 through December 23.

Also, a part of the museum's "Holidays at the Highlands" program will be an exhibit of antique toys of the 20's - 50's, which will run January 2 through February 3.

The museum is celebrating five years of growth and benefit to the community, and is now holding a membership drive. For more information about the Kentucky Highlands Museum, telephone 606-329-8888. The invitation is out for all to come, learn, enjoy themselves, and see that there are (believe it or not) interesting things to collect besides radios.

I regret to announce the recent death of Frank Lynch, of Dunbar, WV, a Charleston Chapter member and an ARCA Board of Directors' member. In addition to being an antique radio enthusiast, Frank was an avid collector of Model A and Model T Fords. Many of you will recall seeing his restored Model A mail truck at last year's ARCA convention.

This writer did not know Mr. Lynch very well, having met him only a few times, but I know that he was held in high esteem by those who knew him well. His death is a great loss to the Charleston Chapter, and to the Antique Radio Club of America.

Zane Parsons
Reporter

MY RADIO'S IN A MINISERIES!

Bob Lane
10332 Mohawk Lane,
Leawood, KS 66206
913-648-5296

It was the middle of May when two women came over to see if I had old radios needed for an NBC miniseries "Cross of Fire". Luckily, I had what they needed. The filming took place during June in Laurence, Kansas, nearby.

I was surprised that all the rented objects were returned in good condition. There were a lot of items they used, such as a 1925 American Beauty 5 tube TRF made in Kansas City; also a 5 tube TRF Ramway made by Allied Products of Chicago in 1925. A Kodel Big Five Logodyne was a back-up set that might have been used—also a TRF 1925 radio.

An RCA 103 tapestry speaker, a Silvertone cone speaker in a gold metal case and an RCA UZ1320 horn speaker were used with those radio sets.

The miniseries is a true story of a KKK man who ran for President in the early 1920's. I was asked if his speeches would use mikes and amps at that time. "Sure", I said, and I provided them with a WE387A double carbon mike on a floor stand and another in a squirrel cage with a wooden stand. Both mikes had been used in Kansas City on station KMBC in the early 1920's.

For an earlier speech, I loaned them a Magnavox hand mike with their T-1 control set and 3 tube amplifier. The amp was purchased in KC from an old radio dealer who had never sold it -it still has the inspection tags—1922.

A large square papermache horn which sits on the floor will be used with the mikes.

The miniseries will be shown either the end of October or beginning of November in two parts, two hours each segment. Naturally I'll be recording it. Hope you all watch it too.

PROPOSED NEW KENTUCKY CHAPTER

The Antique Radio Club of America has received a petition, dated July 20, 1989, from a group of ARCA members in Louisville, Kentucky, expressing their intention to form an ARCA Chapter in Kentucky, and requesting that they be accepted as a Chapter of ARCA. The proposed name, and current address, of the Club is "Kentucky Chapter, Antique Radio Club of America", 1907 Lynn Lea Road, Louisville, Kentucky 40216. The petition is signed by Jerry Humphries, Harlie L. Willis, John S. Mills, Robert E. Dickerson, John H. Caperton, H.J. Seppenfield, and Raymond G. Smith, all of Louisville.

The petition will be acted upon by ARCA's Board of Directors at its regular Fall Meeting in October at Canandaigua, NY.

William E. Denk
Secretary

BOOK REVIEW

RADIO MANUFACTURERS OF THE 1920's Vol. 2

Freed-Eisemann to Priess
By Alan Douglas 266 pages
The Vestel Press, Ltd., Vestel, NY

At last, the wait for Volume 2 of Alan Douglas's great trilogy is over! If you already have Volume 1, you know the kind of excitement that awaits you. If

you don't have Volume 1 (reviewed on page 6 of the GAZETTE, Vol. 16 No. 2, Summer 1988) you'll have the rare thrill of acquiring Volumes 1 & 2 together. And no collector of broadcast receivers manufactured during that most important first decade of the radio broadcast era - 1920's - can appreciate fully his collection without these truly remarkable books.

Volume 1 takes one from A.C. Dayton through J.B. Ferguson, Inc. Through more than 23 different manufacturers and all their radios. Volume 2 takes the reader through some 31 manufacturers, from Freed-Eisemann through Priess. As with Volume 1, a historical review of each company's operations and chief personnel is presented, illustrated with the company's advertisements and other promotional material, including a showing of all its 1920's models.

For example, the 18-page section on the pioneering A.H. Grebe & Co., devotes two pages to a history of the company, with references to Grebe's patent problems with RCA, Westinghouse and Hazeltine. The remaining sixteen pages include a showing of all the Grebe products from its $2.00 crystal detector units, through the famous CR line of receivers, the Synchrophase line of sets, and finally the screen grid sets. Included, for good measure, is a portion of Grebe's patent 1,597,034 showing his variometer with vernier drive mechanism. Also included are photos showing views of production wiring, assembly and testing. There are over twenty reproductions of ads by Grebe during the twenties.

At the other end of the "fame" spectrum, take Martian Manufacturing Company, which is represented in this reviewer's collection only by the "Martian Big Four" crystal set (it has connections for four sets of headphones!), and a copy of Charles Marti's patent no. 1,492,080 of April 29, 1924. Though clearly no Grebe or Atwater Kent, Marti is given five pages, including a brief but interesting history along with pictures of all his products, including several A-C powered sets with 210 power tube audio output and, of all things, an "automatic meter selector", and odometer-like, direct read-out dial that read directly in meters!

There are even four pages on the elusive "Metrodyne", elusive because it was sold, primarily, by mail direct to the consumer by Metrodyne's manufacturer. Metro Electric Co. appears to have been active only during the period 1925-1929.

PHILCO is there too, with eight pages. Remember that Philco was, relatively, a late-comer to radio, not getting into receiver manufacturing until 1928. So in this section (Philco's "pre-cathedral era", if you will) there is covered only the 1928 line of Philco's "Neutrodyne Plus" receivers, and the 1929 line of eight-tube sets with screen grid R.F., push pull audio, dynamic speakers and acoustic equalizers.

Once again, Alan, our congratulations on a task superbly done. Now we await your final opus in this series, Volume 3!

Book Review by
William E. Denk W31GU

NOTE: The hardcover edition of this book sells for $39.95, the soft cover for $24.95. Available through Vestal Press, Ltd., and through our West Virginia Chapter.

RESTORATION TIPS

Have you ever had problems staining some woods, such as gum, pine or Crosley Repwood and how about wood putty! I certainly have, and no stain seemed to work until I recently found a new, different one. Any wood can be stained any color and touch ups are a breeze now! It has an electrical charge.

A Buddy Boy Repwood Crosley had the dark stain worn off one side and no stain would cover it. I used the walnut stain over the entire radio and to my surprise, it's all the same color now only it *shines* now, too.

Philco Cathedral cabinets are frequently gum wood or similar on the curved top and sides. You almost have to spray stain them—an expensive, long process.

With this new stain, you just wipe it on and wipe it off and presto—any color you want!

The molding on the bottoms of cabinets is usually very dark and hard to restain or touch up—not with this stain!!

Philco cabinets are usually reddish and hard to match, but the mahogany stain is perfect for them now. Wear gloves, as the stain is hard to remove from your fingers.

Write to Formulation Department Labs, 14110 W. 107th, Lenexa, KS 66215 for information. There is a touch-up kit for 3 different colors, which can be mixed—water soluble—for $11.90 and 2 — 4 oz. bottles in many colors.

They make a great cleaner which is PH neutral and excellent for plastic and Catalin sets, as well as wood with no discoloring!

Bob Lane
Leawood, KS 66206

Radio: As I Experienced It

Bill Hoy

THE INTRODUCTION OF MULTIGRID TUBES

I take this time to beg your indulgence in the dates I use in these articles. I did keep detailed records of all my customers, showing the work done on each set. My records were exactly like those kept by physicians in their office work. I had copied the method used by a dentist friend, using manila folders placed on long shelves. During my service in World War II, my shop was closed. Children playing in the yard next door threw their baseballs on my roof and caught them as they rolled off. That caused a roof-leak that destroyed my records, and most of my test equipment, before it was discovered. The dates used here are the recollections of a 79-year-old memory, and are not claimed to be completely infallible.

The introduction of multi-grid tubes, and the adoption of the superheterodyne circuit, probably did much to help set makers survive the depression years. Together, those two developments made possible the manufacture of smaller radios with less tubes, that gave better performance, at lower prices than before. Because they were more stable than ever before, they were easier and less costly to repair.

Screen-grid and pentode tubes were first introduced in Europe several years before they were available from American tube makers; I imported and used them in sets I built before the first one was announced for sale in this country. The first one introduced in this country by an American manufacturer was a battery operated tube, a UX222 I believe. I did not think much of that first tube, though it did have the

virtue of no oscillation if the circuits were well-shielded. That tube had a plate impedance so high that it was almost impossible to provide a sufficiently high plate load to secure its potential gain. In spite of this tube's evident shortcomings, it was used in scores of kit-sets marketed by Silver Marshall and others.

All manufacturers knew many more sets could be sold if they could produce good radios at lower prices than the average of $130.00 a radio sold for at that time. The first American made AC heater screen grid tube became available in 1929. It gave radio makers the chance to redesign their sets to meet the need for lower cost and smaller sets that would, at the same time, deliver better performance. That would take about two years to come. In the meantime, set makers did the same as the did at the introduction of the first AC operated tubes—they made only the changes required to permit the use of the new tubes in their sets. Even so, those sets were better than anything before, they were completely stable and more sensitive than ever before.

A year or so later, much smaller Tuned Radio Frequency sets with self-contained loudspeakers were introduced to sell for as little as one-third the price of the previous years sets. These smaller sets were all good values, most of them showed good design and used standard parts where possible. Those small sets, using three screen grid tubes, and a '45 tube in a single resistance coupled audio stage, could run rings around any set of just the year before except the few superhetrodyne sets in the top-of—line offerings of some makers. Even then, the first sets with these new tubes had almost nothing done to obtain maximum performance from the new tubes. The pentode audio tube was adopted sometime later, and with that change you are looking at part of that quantum leap mentioned before. After the introduction, and sale, of the screen grid tube, any set that did not have screen grid tubes was a dead pigeon in the market place.

The superhetrodyne really came into its own in late 1930's with almost all makers having one or more in his line. With them, parts standardization and economy measures really became a way of life. "Wafer" sockets, resistance coupled audio, smaller power transformers, parts riveted in place, the use of lower-cost AC switches mounted on the volume control, terneplate (a one-part tin, five-part lead alloy) as a low-cost chassis protection coating, color coding almost all parts to save the cost of placing labels on them, these all came about then to reduce costs without hurting their performance. Most of these measures made it easier to service several makes of sets in the same shop.

While we are talking about chassis construction, Philco used a different construction method until late in the radio period. Parker-Kalon self-tapping sheet metal screws were introduced about the time Philadelphia Electric Storage Battery Company decided to build radios under the name Philco. Their production lines were designed to utilize th new Parker-Kalon screws in assembly. The story goes that Philco had too many problems with the P-K hex-heads breaking off when they were driven tight. That they spent close to a million depression dollars to solve the problem by a new design of the screw-head and new hardening process for the screws. It was said, too, that Philco recovered their risky

investment with their first year record production using the new screws. Philco seemed to feel everything possible should be securely fastened to the metal chassis; their motto appeared to be "Put a screw in it". They began to produce automobile radios in the mid-thirties, and that policy paid off then. Philco car sets were as reliable as any I ever knew. The Philco sets had every part, except resistors, enclosed in a wax-filled Bakelite case, mounted to the chassis with at least one long screw. When it was necessary to replace a Philco capacitor with a standard replacement item, we would remove the grounding lug from the mounting screw to isolate the faulty capacitor, then connect the new unit from the mounting screw to the old capacitors hot terminal. This made a solid mount for the replacement, one that took less time than needed with other sets. It also provided a solid anchor point for the new capacitor.

We were near the end of 1930, the economy was worsening each day. Radio shops were hurting financially for two reasons, the lack of earnings for the general public and the proliferation of small, low cost, radios for sale. When one of the large sets failed, the owner was likely to take the money required to repair it and purchase one of the new small sets, "To do until times are better." When one of the small sets failed you probably lost the repair job if your estimate was as much as five dollars. Remember, those sets used only about half the very same parts as the larger sets, and because of that, they failed only about half as often. When the set failed, it cost as much for a replacement part as one would for the largest set made. Since the small set had cost one-third the cost of a large set, the owner just knew it should be repaired for one-third the cost. This made it necessary for me to discontinue pick-up and delivery for all but console sets. An extra charge was made for pick-up and delivery of these. My service hourly rate was lowered to compensate for this change. This had to be done, too, because I was seeing an increasing number of owners who could not pay when the set was delivered and never paid, if the set was left in their home. The result of this new policy was a loss of work. I felt much of the lost work would have been unpaid anyway. Another thing, when one of the small sets failed, the owner often gave it the heave-ho and bought another, on credit. I once went for twenty-two days without work. I was hardly able to make my board and pay my shop operating expenses. There were times I could not pay my bills. Even so, I was not as destitute as my neighbors and customers.

As I have said before, no one can tell you anything about the Great Depression and what it did to people's souls, except one who had to earn a living for three during those first four years of it. It hurts to see the children hungry and know there was nothing you could do about it. Even I am not fully qualified as an expert, because my own enormous problems were nothing when compared to those of the many people searching the country for one day's work and a meal.

NEXT: The "Cigar-Box" Radio Sets.

Dear Mr. Drake,
The local library had a book sale, and for 25¢ I bought a marvelous 1913, 469 page hardback book entitled, "The Boy Mechanic", a Popular Mechanics publication. I am going to pass it on shortly to my grandnephew. Since it says, "Book 1," there may have been more volumes that followed.

I copied a couple pages, enclosed, in case they would be of any use or interest for the ARCA Gazette.

The pages describe how to make a spark coil. I made a small one as a kid, and also made a Telsa coil in the 1940's, using a Ford "T" spark coil. The condenser (fixed) was made of 4" x 5" glass plates with cigarette pack foil in-between.

Sincerely,
Frederick Butterfield

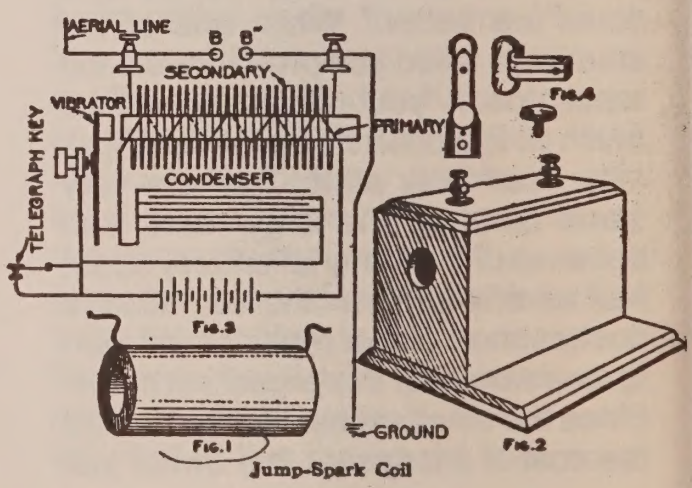
HOW TO MAKE A JUMP START-SPARK COIL

The induction coil is probably the most popular piece of apparatus in the electrical laboratory, and particularly is it popular because of its use in experimental wireless telegraphy. Ten years ago wireless telegraphy was a dream of scientists; today it is the plaything of school-boys and thousands of grown-up boys as well.

Divested of nearly all technical phrases, an induction coil may be briefly described as a step-up transformer of small capacity. It comprises a core consisting of a cylindrical bundle of soft-iron wires cut to proper length. By means of two or more layers of No. 14 or No. 16 magnet wire, wound evenly about this core, the bundle becomes magnetized when the wire terminals are connected to a source of electricity. Should we now slip over this electro-magnet a paper tube upon which has been wound with regularity a great and continuous length of No. 36 magnet wire, it will be found that the lines of force emanating from the energized core penetrate the new coil-winding almost as though it were but a part of the surrounding air itself, and when the battery current is broken rapidly a second electrical current is said to be induced into the second coil or secondary.

All or any of the parts of an induction coil may be purchased ready-made, and the first thing to do is to decide which of the parts the amateur mechanic can make and which would be better to buy ready-made. If the builder has had no experience in coil winding it would probably pay to purchase the secondary coil ready-wound, as the operation of winding a mile or more of fine wire is very difficult and tedious, and the results are often unsatisfactory. In ordering the secondary it is always necessary to specify the length of spark desired.

The following method of completing a 1-in coil illustrates the general details of the work. The same methods and circuits apply to small and larger coils. The ready-made secondary is in solid cylindrical form, about 6 in. long and 2 5/8 in. diameter, with a hole through



Jump-Spark Coil

the winding 1¼" in diameter, as shown in Fig. 1. The secondary will stand considerable handling without fear of injury, and need not be set into a case until the primary is completed. The primary is made of fine annealed No. 24 iron wire cut 7 in. or 8 in. in length, as the maker prefers, and bundled to a diameter of 7/8 in. The wires may be straightened by rolling two or three at a time between two pieces of hard wood. If the amateur has difficulty in procuring this wire, the entire core may be purchased ready made. After the core wires are bundled, the core is wrapped with one or two layers of manila paper. The straighter the wire the more iron will enter into the construction of the core, which is desirable. Beginning half an inch from one end, No. 16 cotton-covered magnet wire is wound from one end to the other evenly and then returned, making two layers, and the terminals tied down to the core with twine. Core and primary are then immersed in boiling paraffine wax to which a small quantity of resin and beeswax has been added. This same wax may be used later in sealing the completed coil into a box. Over this primary is now wrapped one layer of okonite tape, or same thickness of heavily shellacked muslin. This completed primary will now allow of slipping into the hole in the secondary.

Should the secondary have been purchased without a case, a wooden box of mahogany or oak is made, large enough to contain the secondary and with an inch to spare all around, with room also for a small condenser; but if it is not convenient to do this work, a box like that shown in Fig. 2 may be purchased at a small cost. A 7/8 in. hole is bored in the center of one end, through which the primary core projects 1/8 in. This core is to be used to attract magnetically the iron head of a vibrating interrupter, which is an important factor of the coil. This interrupter is shaped as in Fig. 4, and is fastened to the box in such a way that the vibrator hammer plays in front of the core and also that soldered connections may be made inside the box with screws used in affixing the vibrator parts to the box. The condenser is made of four strips of thin paper, 2 yd. long and 5 in. wide, and a sufficient quantity of tin-foil. When cut and laid in one continuous length, each piece of tin-foil must overlap the adjoining piece a half inch, so as to form a continuous electrical circuit. In shaping the condenser, one piece of the paper is laid down, then the strip of tin-foil, then two strips of paper and another layer of foil, and finally the fourth strip of paper. This makes a condenser which may be folded, beginning at one end and bending about 6 in. at a time. The condenser is next wrapped securely with bands of paper or tape, and boiled in pure paraffine wax for one hour, after which it is pressed under considerable weight until firm and hard. One of the sheets of tin-foil is to form one pole of the condenser, and the other sheet, which is insulated from the first, forms the other pole or terminal. (This condenser material is purchasable in long strips, ready for assembling.)

The wiring diagram, Fig. 3, shows how the connections are made. This method of connecting is suitable for all coils up to 1½-in. spark, but for larger coils better results will be obtained by using an independent type of interrupter, in which a separate magnet is used to interrupt the circuit. Besides the magnetic vibrators there are several other types, such as the mercury dash-pot and rotary-commutator types, but these will become better known to the amateur as he proceeds in his work and becomes more experienced in coil operation.

CHECK LIST FOR COLLECTORS

From one old collector to another. Here are a few additional tips:

1. Visual Inspection

a. Carefully inspect for defective a.c. cord and plug, fuse, and pilot light.

b. Look over the antenna, speaker, and ground connections.

c. The tubes also warrant a good visual check. You may find tubes loose in their sockets, or even cracked or broken glass envelopes.

d. On the upper side of the chassis, look for loose grid cap clips, broken wires, shorted tuning condenser, and broken or slipping dial drive belt.

e. On the other side look for charred resistors or condensers, shorts, broken wires, defective power switch, tar from power transformer, excessive melting of filler in the condensers, and poorly soldered joints.

2. Tube Check

a. Two things must be kept in mind when testing tubes: It is never wasting time to carefully test the tubes in a dead receiver. Few, if any, tube testers have a conclusive test for a gassy tube. Watch for tubes that seem to have a mutual conductance above rated value, or those whose emission is above that given on the chart of the tube tester—they may be gassy.

b. If the radio is one of the a.c.—d.c. models and the filaments do not light, check *all* tubes.

c. If the rectifier, 35Z3, 35Z5, 25Z6, etc., is bad, check the high voltage filter condenser in the set before turning on the power with a new tube in the socket.

d. If the radio has a power transformer and one or more of the tubes do not light, check these first, but *test all tubes.*

3. Voltage Measurements

a. Voltage measurements should be taken with the best voltmeter available. Many radio circuits have very high impedance and a voltage measurement is practically meaningless unless taken with a voltmeter whose sensitivity is 1,000 ohms per volt or better. *A vacuum—tube voltmeter is highly recommended.*

b. Measure the B-supply voltage on each side of the filter. In an a.c.-d.c. set this should be at least 90 volts on the filtered side, and about 115 volts on the cathode of the rectifier tube. In sets powered by a transformer the B voltage will vary from 200 to 400.

c. Measure the plate voltage of each amplifier tube. All tubes except the resistance-coupled audio stages and the second-detector diode should have a plate voltage very near the filtered B-supply voltage. The r-c stage or stages should have a plate voltage of about ⅔ the B supply, depending on the type of voltmeter used. The second-detector diode plates should have a low voltage, either positive or negative, depending on the particular circuit used, but it should vary as the dial is tuned across a station if all stages from the antenna to the second-detector are functioning properly.

d. Measure the screen grid voltage of all tubes. Whether or not an a.c.-d.c. model, the voltage should be about 100 volts on the r.f. amplifier, mixer, and i.f. amplifier tubes. Output tubes, if they are pentodes or beam-power tubes, usually are operated with the screen grids at full B voltage.

e. Measure the cathode voltage of all tubes. Cathode voltages will be either zero or a low positive value. If a cathode voltage is as high as the screen-grid or plate voltage, it indicates an open cathode bias resistor or an open lead between cathode and ground. The cathode voltage of the output tube

will be the highest of any of the tubes if the set is operating properly and will vary from about 6 volts in an a.c.-d.c. receiver to about 60 in a large transformer set with a push-pull output.
f. Measure the voltage between the control grid and cathode of all tubes. With a few exceptions, the grid should be negative with respect to its cathode.

4. Repairs and Replacements
a. Use exact replacement parts whenever possible.
b. When replacing resistors, bypass condensers, etc., use a quality part. You will save money in the long run by using quality resistors, condensers, coils and transformers and your repair work will stand up.
c. Use rosin-core solder, and make neat soldered joints. Soldered joints that look like tinned cabbage heads are a risk electrically and mechanically.
d. As to tubes—be honest with yourself. If a substitution must be made, use the closest substitute available. Do not replace a high-mu triode with a low-mu triode. Most radios are well engineered, and they will not give standard performance if unwise tube substitutions are made.

5. Test All Controls
a. The actual repair of the receiver is now completed, and all circuits are in working order. If an r.f. transformer, or oscillator coil has been replaced, you may have to roughly align the set at this point before continuing with this series of checks.
b. Test the tuning control for mechanical operation and note whether the dial calibration is correct.
c. Throw the main power switch several times to see that its action is positive.
d. In like manner try the volume control, tone control, phone-radio switch, and band changing switches.
e. Tune the receiver across a station and observe the action of the tuning indicator or "eye", if the receiver is equipped with one.

6. Vibration Test
a. Select a station on the receiver and listen a few minutes to accustom yourself to the tonal quality and back ground noise of the receiver.
b. Test for noisy or microphonic tubes by sharply tapping each tube with the wooden handle of a screwdriver or similar instrument.
c. Rap the chassis on the work bench or strike it several times with a heavy rubber mallet to see if vibration produces any noise in the output.
d. A noise in the output produced by vibration indicates a defective component or connection, and should be eliminated.

7. Sensitivity Check
a. If the manufacturer's data on absolute sensitivity of a set is known, you should try to bring up the sensitivity of the receiver to that value. However, this information is usually not available to the collector and other tests must be devised.
b. Compare the repaired receiver's performance with that of a comparable receiver known to be in very good condition. Use the same antenna on both receivers when making this test. The sensitivity should be tested on several stations scattered over the entire tuning range of the receiver. If the sensitivity of a receiver after repair is appreciably below that of a receiver with comparable tube line-up and power supply, it indicates that complete alignment is necessary. However, if its sensitivity is good, you should use your own judgment as to whether or not a particular receiver needs a complete realigment.

8. Alignment Procedure

a. If the sensitivity of the receiver is below par, it should be aligned according to manufacturer's directions.

b. If neither the manufacturer's procedure nor circuit manuals are available, standard procedure for superhet alignment should be used. This can be found in nearly any radio handbook.

c. You will encounter some t.r.f. receivers, and it goes without saying that t.r.f. alignment procedure will be used on this type.

9. Two-Hour Check

a. Now that the receiver has been repaired, aligned, and its sensitivity checked, it should be removed from the service bench and set up at some other location. It is turned on, tuned to a station, and allowed to play for about two hours.

b. At the end of this time trial, the sensitivity is again checked. If the set is satisfactory, it is ready for you to enjoy.

'89 ELGIN "RADIOFEST" HUGE SUCCESS!

August 10th, 11th & 12th, The Antique Radio Club of Illinois and the A.W.A. hosted the largest Antique Radio meet in the Illinois club's history.

Headquartered at the Elgin Holiday Inn, the affair was attended by close to 800 enthusiastic collectors and historians with their families.

A beautiful exhibit of Zenith equipment was on display throughout the meet depicting the history of Zenith radios & television, and was enjoyed by all in attendance.

Dan Gustafson, Vice President of ARCI, had an RCA TT5 television set on display and working. Ralph Muchow, curator of "Muchows' Historical Radio Museum", opened the museum on Friday, August 11 and hosted 400 visitors. Ralph had added one more room this year, making a total of 17 rooms in the museum. There were six full-time guides to explain the exhibits (now numbering 3,200 operating sets) to the visitors.

The huge flea market was in operation till the end of the meet, and everyone went home happy and satisfied with their experiences at "Radiofest 89".

MEL'S CORNER

In the early days of radio-especially when everybody was trying to conserve their finances in every way possible— it was common practice to build your own sets.

There was no end of the various ways and wiring diagrams as how this should be done. The radio magazines and newspapers were loaded with writers describing their accomplishments and the end results of getting far away stations!!

These were the fun days!! Many hours were spent winding coils of wire in various forms with sliders and switch taps. The building of loose couplers, variometers, vario-couplers and even condenser forms-variable grid leaks and the like. Next came the bakelite panels which had to be drilled-or sawed off with ridges and usually misalignment! The average fellow then did not have an expensive electric drill! But the old brace and bit drill was handy-and so did the job. More than once did a thin panel get cracked trying to fit it into a cabinet!

After the job was all done and meager results accomplished, out came a new article describing wonderful improvements with a change here and there-with an "improved" component!

Looking over some of these home-brews we see occasionally, you see no end of extra holes in the panels-where these changes were made. Some had the appearance of Swiss cheese!!

Those were the binding posts days! An easy way of hooking up components. Beautiful they were-in many forms-and seldom did they match! However, they served their purpose.

Now and then we find an old home-made set that is carefully wired-usually with bus-bar square wires-of which the owner was especially proud--and we reflect all the diligence and time that was spent to accomplish this task!! On firing this one up, we find surprising results these days!

The great days of "build it yourself" are another era?? Now-we have the restoration era at hand-preserving these old artifacts of yesterday.

When it comes to restoring an old set---be sure you have an ohm meter handy-----and USE IT!!! How many times in our haste to restore-we re-assemble parts taking for granted they are OK---and find later-the set doesn't work!! The parts look great as we put them in-some even new--but don't trust them! So easy to check now-and save frustration later on.

Partial continuity-if any--often appears. A recent experience with a Murdock variable condenser comes to mind—taken new from original box. Assembled on a set at completion--nothing?? Finger pressure on one binding post-jumped the oh needle-the answer? But no---the whole thing had to come apart. A brass connecting strip in there had a partial continuity. Correcting this one led to several other locations. Pity the poor guy back in the twenties who bought this one new-with meager results-HI!

It pays in restorations to check each item carefully as you go along assembling--just to make sure!!

So--what do we do with all the parts these days left over from homemade sets we find of early vintage?? Some we find are in pretty bad shape--still too good to just toss out?? Some so bad you just have to strip for the parts therein. Audio transformers-sockets-rheostats-condensers-coils of all descriptions--now stored for future restorations as they appear??

You clean them up and test them--and then comes the idea-why not make up a couple of samples of these homemades and see how those old components work??? How surprising the results come out on units you never would expect to perform properly. Just takes a good detector tube wired into a regenerative circuit to start the ball a rolling! Following correct plate and grid currents-the oscillation "birdies" begin to appear-all over the dials. Talk about DX-long distance--yes indeed-it's still there!!!

That was the fun in the early days--making up sets-trying different configurations and components. It was fun then-and still is today!!! Dig out some of those old items-and give it a try--Keeps you young-HI!!!

Mel Comer

Murdock Radio Phones
give years of service

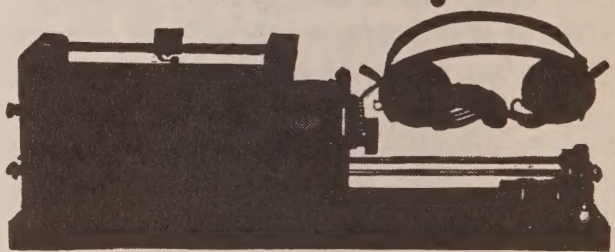
MURDOCK Radio Phones are the greatest 'phone value on the market. They give years of satisfactory service. Get a pair of Murdocks today. They will give new life to your receiving set. Fully guaranteed.

At your nearest dealer
WM. J. MURDOCK CO.
349 Washington Ave., Chelsea, Mass.

MURDOCK
RADIO PHONES
Standard since 1904

Free Booklet
Write for our free booklet, "The Ears of Radio." It contains important data on headphones.

ARLINGTON
Complete RECEIVER
NOTHING ELSE TO BUY **$7.50**



Here is a crystal set for the beginner. Brings in local broadcasting on all wave lengths and code signals up to 4,000 meters. Everything complete, head set, antenna, receiving set, and all insulators, etc., all for the unheard of price of $7.50.
Send your order at once, get into radio, you will find the future has big opportunities and big salaries for those who know.

HECCO ELECTRIC COMPANY
911 Sheridan Road Menominee, Michigan

EVERYTHING IN **Radio** CATALOG **FREE**

GENUINE **UNIVERNIER** KNOB AND SCALE **$1.16** POST PAID

Replace present Dials with UNIVERNIERS—make your set 100% more selective. Log stations accurately by dial numbers. One knob tunes vernier fine or rough at will. Write for free Radio Catalog. Quick service. Real savings on orders. Money back guarantee. Address.
Atwood-King, Inc., Department C7 163 W. Washington St., Chicago

ATWOOD KING INC.

AROUND THE WORLD RECEPTION A CERTAINTY

Every Day in the Year

with the New
15-550 METER
SCOTT
ALL-WAVE
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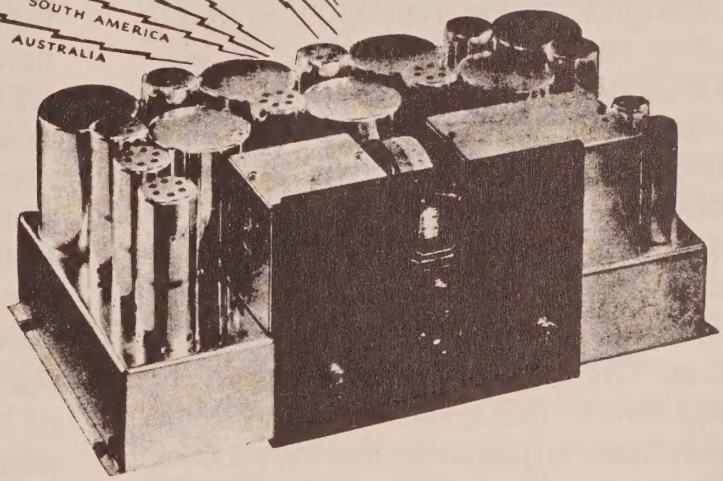
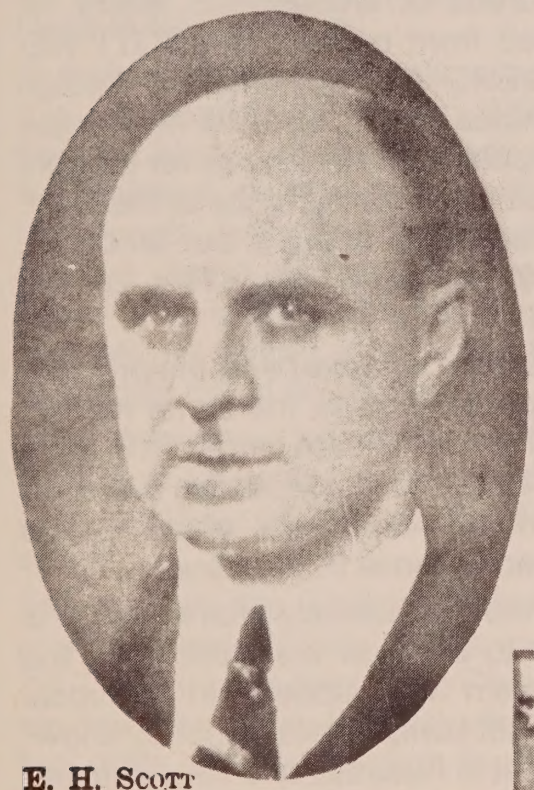
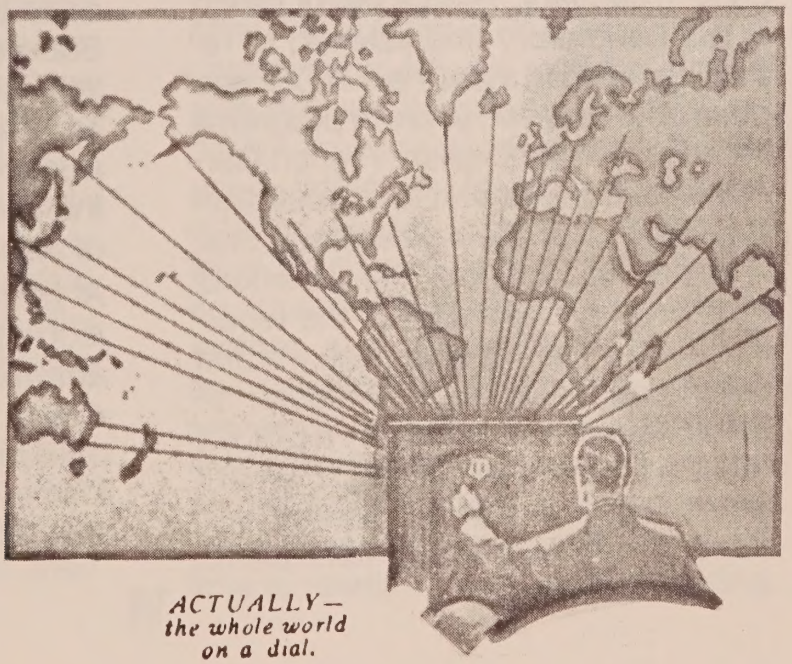




E. H. SCOTT

Pioneer Designer of 'round the world broadcast receivers.

We want to thank Ron McNeill of Yorkton, Saskatchewan, who sent us this early article by Scott. - Editor



ACTUALLY— the whole world on a dial.

A 24,000 MILE TEST ON LAND AND SEA PROVES RECEPTION RANGE ON BROADCAST BAND OF SCOTT ALLWAVE

By E.H. Scott

In the field of radio, if the greatest perfection is to be obtained, a receiver MUST be subjected to the same type of practical test in the field by its designer, as has been found necessary to produce the ultimate in the design of the automobile or airplane.

For years SCOTT RECEIVERS alone, in all this great radio industry, have been subjected to tests never even attempted by the manufacturer of any other receiver. These tests of SCOTT RECEIVERS are comparable to those made by the manufacturers of the finest automobiles and with the same object in view—that is—proving in **actual operation** the perfection of the product.

The test described herein places the final "OK" on the design of the SCOTT ALLWAVE RECEIVER. It gives the purchaser a guarantee that the receiver he buys is a perfected and fully developed instrument that will give its owner worldwide reception in any part of the world.

Early in January, 1933 a visitor called at the Laboratory and listened to recordings we had made here in Chicago during the past two years of programs broadcast from English, French,German, South American and Australian stations. Presently he grew thoughtful. "They are quite good," he remarked, "but why is it that most of the recordings of these foreign stations and these long distance performance records, have all been made by a SCOTT RECEIVER here in Chicago? What I would like to know is whether you could, say in the Southern Hemisphere, duplicate this kind of performance by receiving the American stations as consistently over there. Have you any proof like that of programs being picked up as clearly and consistently from American stations on the other side of the world?"

I believe our visitor asked a perfectly fair question. I answered his query by showing him copies of some of the hundreds of enthusiastic letters received from owners of SCOTT RECEIVERS in 106 different foreign countries telling us they now enjoy reception such as they never thought possible. Copies of some of these letters are to be found in our brochure, "Performance In Every Part Of The World."

For days I pondered over the problem of how to provide the same kind of proof of the reception range of a SCOTT RECEIVER to a prospective owner on the other side of the world that is offered to those in this country.

We had conclusively proved that it is easy to bring in the stations of the Southern Hemisphere in America. Why not complete the proof by showing that in Australia and New Zealand a SCOTT RECEIVER will bring in, with the same vivid power, the programs of America.

At home during the evening the subject kept running thru my mind. As if in answer to this, a letter was laid on my desk a few days later—a letter from an officer of an ocean liner, inquiring what kind of reception a SCOTT RECEIVER would give aboard a vessel that made

cruises between U.S.A. and Australia. He wanted to know if we could guarantee reception of American stations during the voyage to Australia and back.

A glance at your library globe will tell you that a journey to Australia and New Zealand by any route from America must encompass half the globe, pierce the Equator and carry you into the Southern Hemisphere.

So an itinerary was planned that would enable me to make reception tests during the whole voyage. Between busy days at the Laboratory, I graphed my route and the means of checking the performance of the receiver which I was to take with me.

To make the test as authentic as possible I arranged with Station WBBM, here in Chicago, to observe their daily transmission of "Round the Town" broadcasts, and cable to them each night a report of the reception on board ship, identifying specific numbers played so that reception of each broadcast could be verified.

At last everything was ready, and Mrs. Scott and I boarded a United Airline plane and headed West for San Francisco.

February in the United States, of course, means Winter with a capital "W." As we bade farewell to Chicago, we drove thru roads banked with three foot drifts of snow to reach the flying field. Here we found that snow ploughs were being used to keep the airport run-ways clear to allow the planes to take off. Presently, our plane's motors roared thru their priming, the pilot leaned to his "stick," and we were aloft.

The first 500 miles between Chicago and Omaha were covered at an average speed of 144 miles per hour in perfect flying weather. But from then on "Old Man Winter," with blasts of hurricane force and blinding snow storms, soon slackened our speed until at Elko, Nevada—1000 miles farther— the plane was grounded until the weather cleared. We were compelled to stop altogether as the flying field was completely lost in hugh quilts of snow. From there on, it was necessary to proceed to San Francisco, by rail.

Arriving at San Francisco we registered at the St. Francis Hotel, then drove down to the quay to look over our ship, the R.M.S. Maunganui, which was to take us on the first ocean lap of our journey.

After a visit to our stateroom I walked to the upper deck to see where an antenna could be put up. Here I ran into my first difficulty, for the antenna must necessarily be put up in a position where it would not interfere with the ship's antenna, which was suspended between the two masts.

The only space left for me to erect my antenna was from a yard arm on the forward mast. This, it apppeared at first, offered the possibilities of a very good antenna installation, but I was soon confronted with perplexing obstacles.

After the antenna was erected and connected to the set, and the current switched on, it was immediately apparent that the location was not so good. Attempts to bring in distant stations resulted in considerable electrical interference. Every ocean liner is equipped with numbers of electrical motors and electrical accessories, and unless these are properly filtered and a special antenna used, reception is extremely difficult. Fortunately, we at the Scott Laboratory for several years have devoted a great amount of time to research work in constructing

efficient filters and the design of special antennae to help reduce or eliminate electrical interference.

I soon found that the only way to cut the interference was to shield and ground the lead-in for 41'3", but unfortunately, this allowed me an open antenna of only 46'5".

Plainly, a 46' antenna is not the most ideal length in the world, if the object is the reception on the broadcast band (NOT short wave) of stations up to 10,000 miles distant, for it will readily be understood that the shielded and grounded lead-in of 41'3" eliminated all pick-up of broadcast signals.

But the clipped length of my open antenna was only part of the handicap. The ship's main antenna, the steel ropes used to guy the masts, and the mass of steel in the ship itself, all conspired to absorb some of the signal reaching the vicinity of my short 46' antenna.

However, I was bound to accept conditions as they were, and proceeded with the antenna installation which was finally completed before the hour of sailing—11:00 a.m.—the 15th day of February 1933.

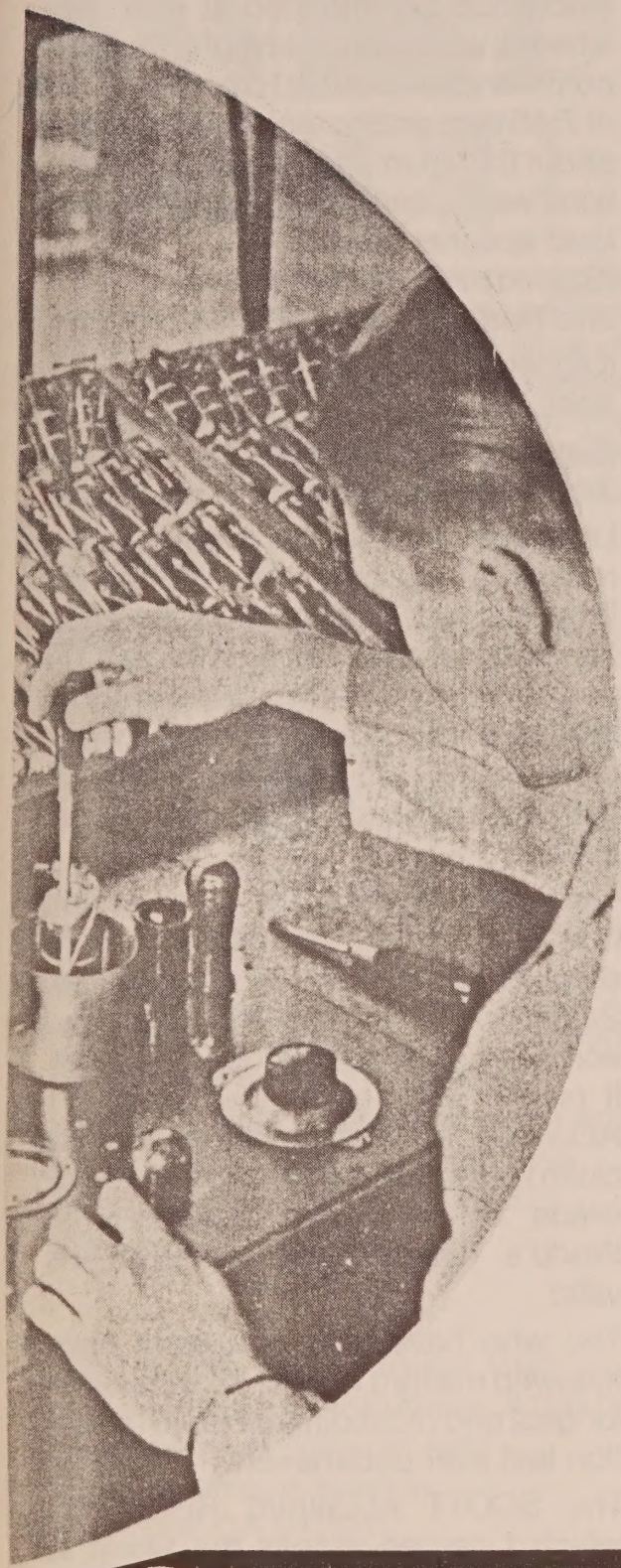
I had been switching off and on, bringing in Pacific Coast stations. They had come in perfectly and with any volume desired. But what was the real DX to be like? Was my shielded lead-in suffieciently above the noise level of the local electrical interference aboard the ship? Would a short 46' antenna possess enough pick-up to pull in on the broadcast band stations thousands of miles away?

As soon as dusk began to fall—even before it was completely dark—that question was settled conclusively, for a few minutes before 6:00 p.m., ship's time, WBBM began coming in and by 7:00 p.m. it had all the vitality of a local program.

The return journey was made by the S.S. Mariposa. Every night on the outward journey, until I arrived in Wellington on March 5th, I logged the entire "Round the Town" program transmitted from WBBM in Chicago. The same result was accomplished again on the journey back aboard the S.S. Mariposa. Every night I made a report to WBBM by radiogram of my reception of each program. These messages were read onto the air, and heard by thousands during the three and a half months the test lasted.

I made the first reception test of WBBM's signal from a distance of nearly 2000 miles the night we left San Francisco. The next night the test was at 2400 miles; the next approximately 2800 miles; and so on, progressing at the rate of about 400 miles a day, until ultimately I reached a distance of 9600 miles from WBBM's transmitter. WBBM transmits on a wavelength of 770 KC — right in the center of the broadcast band. I want to make it clear that this test was **not** made on short waves, but on the Broadcast Band.

What does such a test as this mean to the average man? It means simply this: That on his behalf I have put the SCOTT ALLWAVE RECEIVER to a test of operation under abnormal conditions, to receiving at extraordinary distances, in all kinds of weather, including tropical static. It was a test made to prove that a SCOTT ALLWAVE RECEIVER has enough reserve power to bring in on the Broadcast Band stations from one side of the world to the other as it has already proved it can do on the Short Wave bands.



Of both Foreign *and* Domestic Stations

SCOTT Laboratory Technique begins with advanced engineering design . . . follows exacting specifications for every component part . . . includes custom construction by specially trained technicians who test and retest to assure the degree of perfection that gives SCOTT All-Wave DeLuxe Receivers the right to the title of "World's Finest Radio Receiver."

And how the SCOTT All-Wave DeLuxe lives up to its title! A twirl of its single dial brings magic music and the sounds of foreign tongues from stations 10,000 miles away as readily as it gives superior reproduction of familiar programs from homeland stations. Utter simplicity in changing from one wave band to another . . . just the turn of a switch—no plug-in coils, tapped coils or bothersome connections.

Tone. . . Sensitivity. . . Selectivity? What would you expect from a receiver known as "the world's finest"? Millions of words from us would bear less weight than the enthusiastic praise of SCOTT owners. More than 19,000 logs of foreign receptions have come to us from them within a year. In trial after trial SCOTT receivers continue to break all records for distance reception . . . for needle point selectivity . . . for gorgeous tone richness unrivalled in radio.

Before you buy any radio receiver learn all about the finest one. . . that is warranted to give true world-wide reception and every part of which (except tubes) is guaranteed for five years. You will be pleasantly surprised to find that, in spite of its custom-built superiority, a SCOTT All-Wave DeLuxe may be purchased for no more than many models of ordinary receivers.

E.H. SCOTT RADIO LABORATORIES, Inc.
4450 Ravenswood Avenue **Dept. RS-33**
CHICAGO, ILLINOIS

The 15-550 METER SCOTT ALL-WAVE Deluxe

LOG OF RECEPTION ON SCOTT ALLWAVE RECEIVER ON ABOVE VESSEL AS IT NEARED THE SHORES OF NEW ZEALAND

Position—8,680 Miles Airline From Chicago

(all times listed below are p.m.)

6:07	KFI	Just beginning to come in
6:12	KFI	Lady singing
6:13	KFI	Man singing with orchestra
6:13½	KFI	Man and woman harmonizing or singing together
6:14	KFI	Chorus
6:15	KFI	Announcement—"Associated Products Programme"
6:17	KFI	Duet—"Say It Isn't So"
6:18	KFI	Clapping. Then announcer said "Now we will have the second episode of '——'"
6:20	WBBM	Just starting to come in
6:23	KNX	"I'll Be With You In The ——" Solo by man
6:24	KNX	"Hours and Hours"
6:28	KMOX	Vocal refrain with orchestra
6:30	KSL	Weather forecast, "unsettled Sunday;" then followed weather forecast of surrounding States
6:35	KSL	"Just About Right For Me"
6:26	KSL	"My Darling," Orchestra
6:39	KSL	Don Kaye's Boys, "Is That All I Meant To You?"
6:47	KNX	Organ
6:47½	KNX	"We regret to announce Dan James who was to appear tonight is unable to do so. You have been listening to ——at the console of the Kilgen Organ"
6:49	KFI	Dance orchestra from the Cocoanut Grove. Song with Frank Disney at the piano, "When Things Go Wrong"
6:51	WLW	"Baby Parade," for friends in Dreamy Ohio
6:53	WLW	"Try A Little Tenderness"
6:55	WBBM	Dance orchestra coming in with good volume
6:56	WBBM	"Nobody's Sweetheart Now" —Frank Ramondi sings vocal refrain
6:59	WBBM	Another number
7:00	WBBM	Announced Ben Pollack and his orchestra
7:03	WCCO	Dance Orchestra
7:03½	WCCO	"Paradise"
7:05	WCCO	Tom Durkin's orchestra playing a selection sacred to all—"Sweethearts of APO"
7:07	WCCO	"Tiger Rag"
7:13	WBBM	"What Have We Got To Lose"—Girl singing refrain
7:15	WBBM	Ben Pollack signed off
7:15½	WBBM	Announcement to E.H. Scott in which last night's cable was read over the air
7:24	KGO	"Washboard Blues"
7:26	KGO	"That was the only Phil Harris"
7:27	KGO	Piano solo
7:28	KGO	"Bright Eyed Susan Brown"—Orchestra
7:29	WBBM	Vocal refrain with orchestra
7:30	WBBM	Herbie Mintz Granada Orchestra started
7:34	KGO	"We're Together Again"
7:35	KHI	Dance Orchestra
7:37	KHJ	"And another lovely melody with —— singing the vocal chorus"
7:40	KHN	"You've Got Me In The Palm Of Your Hand"
7:46	WBBM	"In The Valley"

We, the officers whose signatures appear below verify the fact that we have each personally listened to the above stations and selections from them.

Reception commenced at 6:07 p.m. when it was broad daylight. Twi-light commenced about 7:15 p.m. Dusk fell at 7:45 p.m. and complete darkness at about 8:00 p.m. All stations and selections were clearly heard and with good loud speaker volume.

(Signed) A.E. Foster
2nd Radio Operator

(Signed) A. Bowers
Asst. Purser

(Signed) C. McCaskey
3rd Radio Operator

Logs were made each evening of the reception, not only from WBBM but from stations in all parts of America. So great is the sensitivity of the SCOTT ALLWAVE RECEIVER that I found it comparatively easy to sit down in front of my instrument and tune in from fifteen to twenty U.S. stations every evening.

The long testing time was over. My log books contained the detailed record of a memorable journey of more than 24,000 miles across the world and across the mightiest of the seven seas. It proves once again that a SCOTT ALLWAVE is master of the air, and its claim to the title bestowed on it by hundreds of its proud owners—The World's Finest Radio Receiver—is valid.

You who have read this story have followed me thru what is doubtless the longest and most difficult radio reception test ever undertaken.

The SCOTT ALLWAVE RECEIVER which I carried across the world is identical in specifications, in structure and in engineering, less only the addition of new developments made in our research laboratory from time to time, to the Scott models which daily leave our Laboratory in Chicago for the homes of those who seek the finest in radio.

Ye Old SWAP SHOP

All ads and Swap Shop items are printed in the Gazette free of charge. We do ask that you write your ad on a separate sheet of paper, type if possible, or print, and be sure to include your name and address. We reserve the right to edit all ads. ARCA is not responsible for any transactions, of course.

WANTED: Crude battery sets with Ace Products metal tag made by Precision Equipment Co. Have some nice sets to trade such as Crosley 4-29P, Federal 102, DeForest Unit Panel, etc. Craig Ball, 204 N 5th St., Marshalltown, Iowa 50158

FOR SALE: BC406A; CRTS: 2AP1, 3AP1A, 3BP1, 5ADP1, 7B17 - Offers or trade for **any** old ham gear;
WANTED: old Amateur xmtrs (or parts of) any condx. Parker Heinemann, 87 Cove Road, Lyme, CT 06371 203-434-7783

FOR SALE: 1930 through 1940, eleven years of Radio News. $150.00 plus shipping. Floyd A. Paul 1545 Raymond Avenue, Glendale, CA 91201 818-242-8961

FOR SALE: Zenith 1000D, $110. 3000-1, $130, clean working.
WANTED: Transoceanic R600L, T600L ton leather covered, excellent. WE 215-A (VT-5) N.O.S.
Charles Rhodes
64 South River Road
Edgewater, MD 21037
301-266-3691

WANTED: Western Electric amps, receivers, manuals, literature, components, and tubes.
Tad Drogoski,
507 Coal Valley Road
Clairton, PA 15025

AMAZE YOURSELF and your friends. Build scanning disk televisions. Why wait to find one? (We're getting older fast). You can build one for a lot less, it'll work and you'll have it now! Send for my info package, $2 (refundable). don't put it off any longer. Write to Peter Yanczer, 835 Bricken St., St. Louis, MO 63122

WANTED: Power transformer Zenith P/N 95-630N or suitable equivalent for Zenith classics model 1005, or complete chassis, reasonably priced. Also, schematic diagram.
Robert W. Lvedeman
2221 Ohio Avenue
Signal Hill, CA 90806
213-494-3972

SALE: Loads of rare radio research data—books—magazines—catalogues—papers. All available at Canandaguia AWA Flea Market, October 4-7th See me there.
Jim Kreuzer, 6270 Clinton, St. Elma, NY 14059

FOR SALE: 60 years accumulation of old radios, record players,test equipment, tubes, radio manuals, service notes, including RCA, Philco, Magnavox, Atwater Kent, Motorola, etc. *Must sell before December.* SASE for list. All replies answered.
George Greenberg, 821 Porter St.
Philadelphia, PA 19148
215-468-0293

WANTED: Radios with oriental-style cabinets, radios that are also genuine furniture pieces (china hutches, refrigerators, dining-room tables, etc.), and unusual novelty (tube type) radios.
Gerald Schneider,
8750 Georgia Ave., #1410-B,
Silver Spring, MD 20910
301-565-2840

FOR SALE-or-CONSIGNMENT
At Rehmingers-one of the largest Flea Markets in the Northeast. See Joe Horvath's radio and photograph booth there! Sundays only-Many collectors attend there regularly bringing old gear for swap-sale, bargains—a plenty!!
Rt. 272, Adamstown PA

WANTED: Escutcheon cover for Admiral tv model 20A1 bakelite floor model; 1 small rheostat knob, 1 large tuning knob w/brass pointer for Music Master 175; Philco Mystery control box.
Rick Taylor, 7136 E. Lea Road,
Chattanooga, TN 37421
615-821-0809

WANTED: Radiola 18 tuning knob, volume knob, rheostat, power switch escutcheon and dial hood. Reichmann (Thorola) Model 4 horn speaker base in any condition. Looks like model 3 on page 51 of "Horn Speaker Encyclopedia". Radiola III rheostat, knobs (2), and box for completion of restoration. All parts are for restoration of sets in my collection. These sets when restored will never be sold.
Leonard Arzoomanian,
61 Columbus Ave., North Providence,
RI 02911, 401-232-0869

FOR SALE: Atwater Kent 184 — Tombstone-works—finish needs a little darkening on top. Old English polish should do it.—$165.
Hallicrafters S-20R Sky Champion 1938, amateur receiver - not working-exc - $50 - covers am band and short wave bands
Also many other radios, books & tubes. Send 2 stamps for complete listing to Ron Boucher,
P.O. Box 541,
Goffstown, NH 03045
603-497-2988

WANTED: Continental piano or Colonial globe radios. Motorola 68L11 AC/DC set. John Okolowicz
624 Cedar Hill Road,
Ambler, PA 19002
215-542-1597

WANTED: EH Scott All Wave 27 (FOS pg. 167, lower right). Also seeking EH Scott Quaranta radio, it has 40 or more tubes and is housed in 2 or more cabinets. Jim Clark, 1292 Starboard,
Okemos, MI 48864
517-349-2249

WANTED: One of each of the following tubes: RAC-3, Western Electric 'N' Type, Western Electric #216-a, BA Rectifier, WD-11, #17. Prefer all to be electrically defective.
Sam W. Wrenn,
2314 Seminole, Apt. 1207
Arlington, TX 76010

FOR SALE: Riders, Howard Sams, plus other service data. Test eqpt. parts, tubes, plus 1000's of unlisted items. List for SASE. Still have some Ace Radio prints. See ARCA front cover June 1989.
F. Krantz, 100 Osage Ave.
Somerdale, NJ 08083

FOR TRADE: AK green type TA detector 2 stage amp, AK brown variable capacitor, AK mounted variometer, AK coupled circuit tuner, McElroy bug (Deluxe Model MacKey) and Bunnell W.U. Tel co. key. Need 1920 and earlier QSTs. Bill Hurni W3HWT 329, Evergreen Drive
North Wales, PA 19454

FOR SALE: Rare Nazi transmitting and receiving tube collection. Scott projection television in pieces, complete and restorable. SASE for list.

WANTED: Unusual vacuum tubes and semiconductors also buying old microscopes and parts, mounted slides, etc.
Warren Johnson, 2321 Hazelwood
Ft. Wayne, IN 46805
219-482-1105

WANTED: RCA Receiving Tube Manual or any other brand, advise on price.

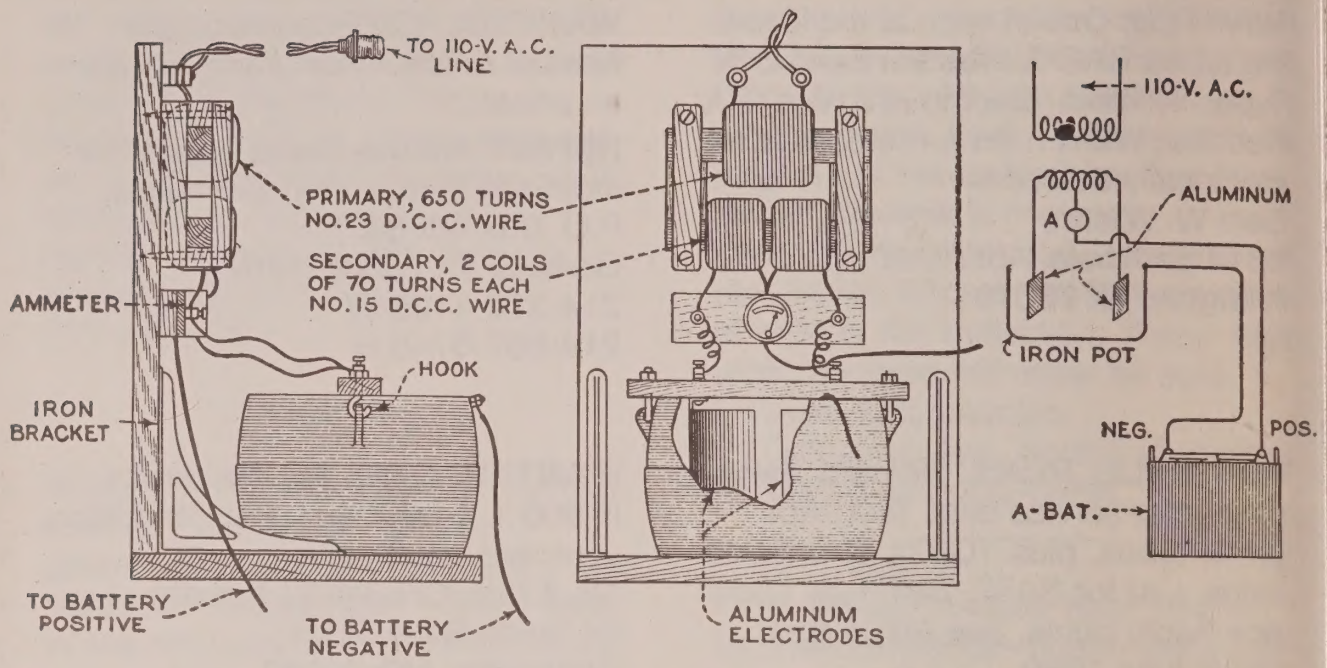
REPAIR: Antique Radio Repair, for most any model. Fred Cranshaw,
P.O. Box 461852,
Garland, TX 75046-1852
214-272-1120 W
214-557-5145 H

WANTED: Zenith Transoceanics R 600 L T 600L excellent condition, complete and original.
Mr. & Mrs. Charles W. Rhodes
64 South River Road
Edgewater, MD 21037
301-266-3691

WANTED: Westinghouse Aeriola Jr. Please state condition—original or any substitute crystal detector on there? Rough one considered also
Tolbert Prowell
1073-15 Lancaster Blvd.
Mechanicsburg, PA 17055
717-697-5227

WANTED: Riders 2, 11-20. Zenith 10H571 chassis. Scott Philharmonic.

WANTED: Pepsi cooler radio (blue plastic).
Gary Glazier, 3031 El Caminito
La Crescenta, CA 91214
818-248-1693



HEAVY-DUTY RECTIFIER FOR STORAGE BATTERIES

FIG. 3

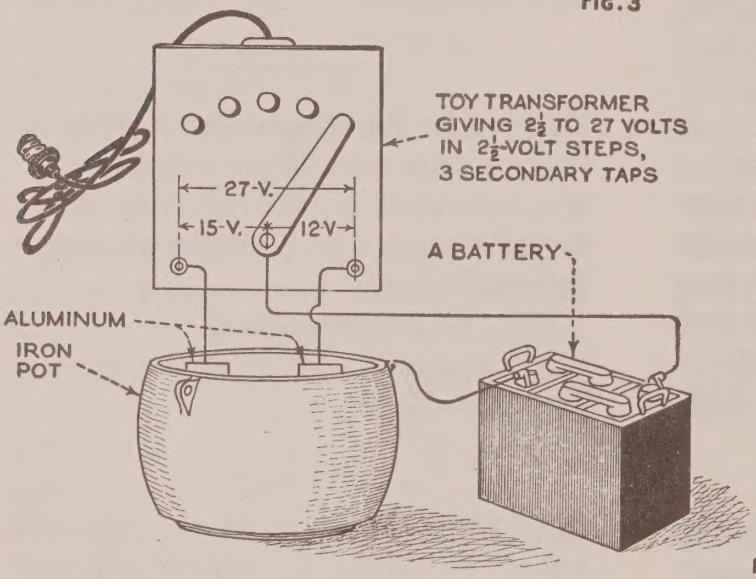


FIG. 4

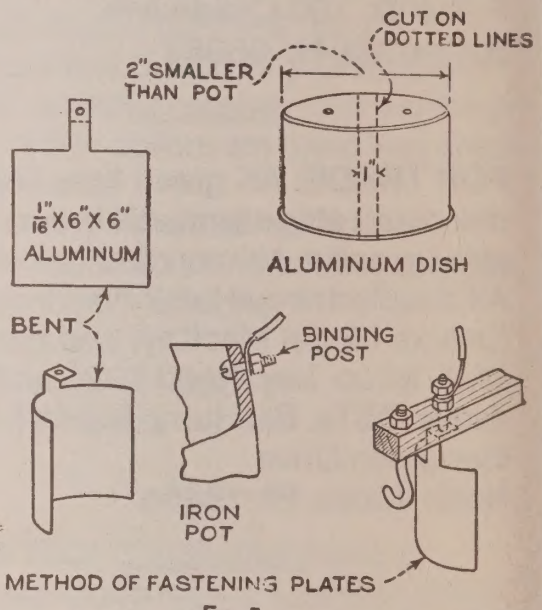
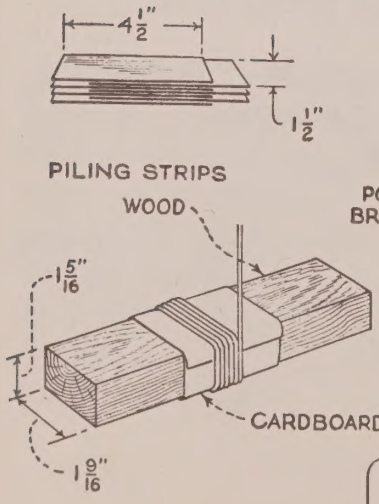
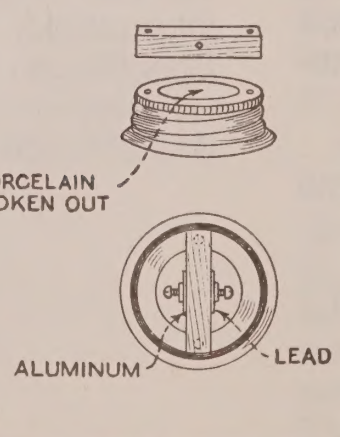


FIG. 5



WINDING COILS

FIG. 6



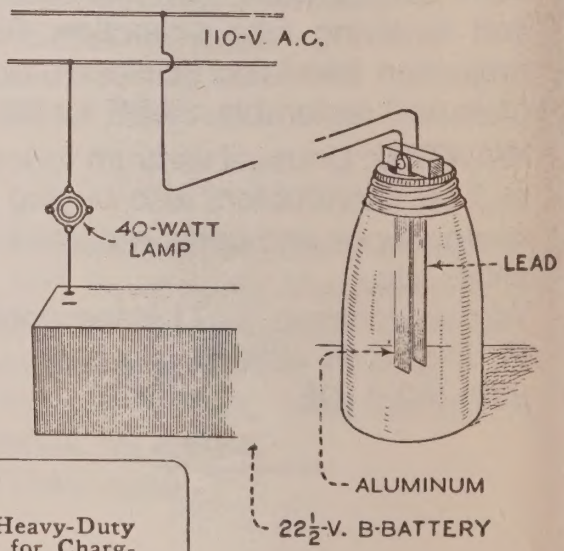


FIG. 7

Details of Construction of Heavy-Duty Rectifiers and Transformer for Charging Radio A and B-Batteries from Alternating House Current

COLLECTOR'S BOOKS

Antique Radio Restoration & Price Guide by David & Betty Johnson $12.95
Guide To Old Radios, 225 pgs., by David & Betty Johnson ..... NEW 15.95
Seventy Years of Radio Tubes & Valves By John W. Stockes (SC) 19.95
Radio Enters The Home, 128 pgs. 8½ X 11 ..... 12.50
Radio Equipment & Supplies - 168 page reprint 12.50
1927 Radio Encyclopedia - Gernsback, 179 pgs. 11.95
Crosley Radio Catalog, circa 1923, 32 pages 4.50
Westinghouse Apparatus, circa 1920's, 8½ X 11 ..... 4.00
Short Wave Radio Manual, Official 1934, 260 pages 14.95
How To Repair Old-Time Radios 9.95
Vintage Radio Handbook, 263 pages, 1000 illus. 11.95
Flick Of The Switch 1930-1950, 312 pgs., 1000 illus. 11.95
Most Often Needed Diagrams 1926-1938, 600 models 11.95
1921-1932 Collector's Guide, 264 pg., 9,000 models 11.95
Atwater Kent Radio Parts Book, 24 pages, Model 9 plus 50 speakers 4.95
ARVIN. . .The First Sixty Years, 263 pgs. ..... NEW 7.95
Radio Collector's Directory & Price Guide, 321 Pages 15.95
Wireless & Electrical Encyclopedia, The Electro Importing Co. 4.95
Early Wireless by Anthony Constable, HB 15.95
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Radiola Super - Hetrodyne 2nd Harmonic 4.95
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Grebe Syncrophase Instruction Manual, 70 pages, an excellent reproduction 10.95
Official Radio Service Manual, 1930 Gernsback, 8½ X 11, 356 pages 19.95
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Radio Station Treasury 1900-1946 — 8½X11 176 pgs. 12.95
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Syntony & Spark, by Hugh G. J. Aiken, 368 pgs. 14.95
Los Angeles Radio Mfg., by Floyd Paul — P.B. 9.95
Radio Speaker Encyclopedia, 8½X11, by Floyd A. Paul 11.90
Fifty Years of Radio, March 1938 issue of Hugo Gernsback's famous publication - 134 pgs. . 14.95
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